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EXAMINER

PATEL, NIKETA I

ART UNIT	PAPER NUMBER
2182	4

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/007,170

Applicant(s)

PARK ET AL.

Examiner

Niketa I. Patel

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2182

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. For example, line 4 of claim 1 recites, "**being inputted the data through an I2C interface**", it should recite, "**inputting the data through an I2C interface**".

Art Unit: 2182

4. Claim 44 recites the limitation "the operation mode" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. As far as the examiner can interpret the claims in light of the U.S.C. 112, second paragraph, supra, claims 1-4, 14-15, 18-21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiwiet et al. U.S. Patent Number: 5,854,618 (hereinafter referred to as "Kiwiet".)

7. **Referring to claim 1**, Kiwiet discloses an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47]; and being inputted the data through an I2C interface in a standby mode and displaying the image and text on a screen [see column 2 - lines 45-67; figure 1 -

Art Unit: 2182

elements 17, 12, 14], being inputted the data through a video codec in an active mode and displaying the image and text on the screen [see column 2 - lines 45-67; figure 1 - elements 10, 12, 14.]

8. **Referring to claims 2**, *Kiwiet* discloses that the data is displayed on the screen without passing through the video codec when the operation mode is in the standby mode [see column 2 - lines 45-67; figure 1 - elements 10, 12, 14, 17.]

9. **Referring to claim 3**, *Kiwiet* discloses that the image is a still image, a moving picture and an animation [see column 3 - lines 1-34, 49-62.]

10. **Referring to claim 4**, *Kiwiet* discloses that the data includes an animation and/or a text to be displayed as a background of a still image or only text [see column 3 - lines 1-34, 49-62.]

11. **Referring to claim 14**, *Kiwiet* discloses an interface apparatus for a display system, comprising: a main CPU (Central Processing Unit) outputting data including an image and a text according to an operation mode of a system [see figure 1 - element 13]; a video codec being inputted the data and outputting the data by interfacing with the main CPU in accordance with the operation mode [see figure 1 - elements 10, 13; column 2 - lines 45-67]; and a driver being inputted the

Art Unit: 2182

data through the video codec in accordance with the operation mode or being inputted the data from the main CPU through an I2C interface of the main CPU and displaying the inputted image and text on a screen [see figure 1 - elements 10, 17, 13, 14; column 2 - lines 45-67.]

12. **Referring to claim 15**, *Kiwiet* discloses wherein the data is displayed on the screen without passing through the video codec when the operation mode is in the standby mode [see column 2 - lines 45-67.]

13. **Referring to claim 18**, *Kiwiet* discloses wherein the main CPU transmits the data to the driver through the I2C interface when the operation mode is the standby mode [see column 2 - lines 45-67.]

14. **Referring to claim 19**, *Kiwiet* discloses wherein the video codec is inputted the data and outputs the data to the driver by interfacing with the main CPU when the operation mode is the active mode [see column 2 - lines 45-67.]

15. **Referring to claim 20**, *Kiwiet* discloses wherein the driver is directly inputted the data from the main CPU and displays it on the screen when the operation mode is the standby mode [see column 3 - lines 1-34, 49-62.]

Art Unit: 2182

16. **Referring to claim 21**, *Kiwiet* discloses wherein the image is a still image, a moving picture and an animation [see column 3 - lines 1-34, 49-62.]

17. **Referring to claim 24**, *Kiwiet* discloses wherein the data includes an animation and/or a text to be displayed as a background of a still image or only text [see column 3 - lines 1-34, 49-62.]

18. As far as the examiner can interpret the claims in light of the U.S.C. 112, second paragraph, *supra*, claims 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by *Singhal et al.* U.S. Patent Number: 5,488,385 (hereinafter referred to as "*Singhal*".)

19. **Referring to claim 37**, *Singhal* teaches a method transmitting and writing data in a memory of a LCD driver through an I2C interface of a main CPU (Central Processing Unit) of a mobile communication terminal, an interface method for a display system, comprising: outputting sequentially a byte for slave address, a byte for mode setting and a byte for pixel data when data is burst data [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 10 - lines 1-29]; outputting sequentially a byte for slave address, a byte for mode setting, a byte for area start address, a byte for area end address and a

Art Unit: 2182

byte for pixel data when data is area data [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29]; outputting sequentially a byte for slave address, a byte for mode setting, a byte for line address and a byte for pixel data when data is line data [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29]; and outputting sequentially a byte for slave address, a byte for mode setting, a byte for pixel address and a byte for pixel data when data is pixel data in order to write the data in the memory of the LCD driver [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29.]

20. **Referring to claim 38**, *Singhal* teaches a method wherein the data is one of an image type and a text type [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29.]

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time

Art Unit: 2182

the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. As far as the examiner can interpret the claims in light of the U.S.C. 112, second paragraph, supra, claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiwiet et al. U.S. Patent Number: 5,854,618 (hereinafter referred to as "*Kiwiet*".)

23. **Referring to claims 22 and 23,** *Kiwiet* discloses an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47] however, does not teach that the driver is inputted the data at 30 frames per second through the video codec when the operation mode is the active mode and displays the image and text of the data on the screen at the same speed, wherein the driver is inputted the data at 5 frames per second through the video codec when the operation mode is the standby mode and displays the image and text of the data on the screen at the same speed.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to operate a codec at a higher speed during an active mode and at a slower speed during standby mode to get the advantage of saving system resources. It would

Art Unit: 2182

have been obvious to one of ordinary skill in the art at the time of applicant's invention to operate a codec at a higher speed during an active mode and at a slower speed during standby mode to get this advantage.

24. As far as the examiner can interpret the claims in light of the U.S.C. 112, second paragraph, *supra*, claims 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singhal et al. U.S. Patent Number: 5,488,385 (hereinafter referred to as "*Singhal*".)

25. **Referring to claim 39**, *Singhal* teaches a display system with a memory however, does not teach a pertinent bit of the byte for slave address is set as "1" when the data is image data, and the pertinent bit of the byte for slave address is set as "0" when the data is text data.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of differentiating various types of data using different binary bits. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to set a bit of the slave address as "1" or "0" to get this advantage.

Art Unit: 2182

26. **Referring to claims 40, 41,** *Singhal* teaches a display system with a memory however, does not teach wherein the byte for mode setting includes an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data wherein the EOFD bit is set as "1" when data of one frame is transmitted at one time.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of differentiating various types of data using different binary bits. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data to get this advantage.

27. **Referring to claim 42,** *Singhal* teaches a display type bit and an OSD memory selection bit of the byte for mode setting in the burst data outputting step are set so as to be corresponded to an access method of main CPU (Central Processing Unit) [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 10 - lines 1-29.]

28. **Referring to claim 43,** *Singhal* teaches wherein it is possible to update up to two image pixels by using a random byte

Art Unit: 2182

in the pixel data outputting step [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 10 - lines 1-29.]

29. **Referring to claim 44**, *Singhal* teaches a display system with a memory however, does not teach setting the operation (active, standby, power down) mode by using a control register or selecting a position of OSD (on screen display) regions of determining on/off of the selected OSD regions.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to set different modes via a control register to get the advantage of being able to set various operating mode using inexpensive registers. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use control register to get this advantage.

30. As far as the examiner can interpret the claims in light of the U.S.C. 112, second paragraph, *supra*, claims 5-13, 16-17 and 25-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kiwiet et al.* U.S. Patent Number: 5,854,618 (hereinafter referred to as "*Kiwiet*") and further in view of *Singhal et al.* U.S. Patent Number: 5,488,385 (hereinafter referred to as "*Singhal*".)

Art Unit: 2182

31. **Referring to claim 5**, *Kiwiet* discloses an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47] however does not disclose that the data is transmitted to a memory, written in the memory and displayed on the screen. *Singhal* teaches a use of display system with a memory that significantly improves image quality [see *Singhal* column 2 - lines 31-43] and further advantage is that the memory allows one to store frame buffer data and control register data necessary to permit the generation of the multiple independent displayable images [see *Singhal* column 2 - lines 66-67; column 3 - lines 1-6.]

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the display system of *Kiwiet* to have a display memory associated with it in order to store frame buffer data and control register data necessary to permit the generation of the multiple independent displayable images. It is for this reason that one of ordinary skill in the art would have been motivated to implement *Kiwiet's* display system with a memory to allow storage of display and control data.

32. **Referring to claim 6**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to

Art Unit: 2182

claim 5, teaches transmitting and writing data in the memory includes the steps of: outputting sequentially a byte for slave address, a byte for mode setting and a byte for pixel data when the data is burst data [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 10 - lines 1-29]; outputting sequentially a byte for slave address, a byte for mode setting, a byte for area start address, a byte for area end address and a byte for pixel data when the data is area data [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29]; outputting sequentially a byte for slave address, a byte for mode setting, a byte for line address, a byte for pixel data when the data is line data [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29]; and outputting sequentially a byte for slave address, a byte for mode setting, a byte for pixel address and a byte for pixel data when the data in pixel data in order to write the data in the memory [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 7 - lines 9-18; column 10 - lines 1-29.]

33. **Referring to claim 7**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 5, teaches wherein the data is one of an image type and a text type [see *Kiwiet* column 2 - lines 1-34, 49-62.]

Art Unit: 2182

34. **Referring to claim 8**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 5, teaches a display system with a memory however, does not teach a pertinent bit of the byte for slave address is set as "1" when the data is image data, and the pertinent bit of the byte for slave address is set as "0" when the data is text data.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of differentiating various types of data using different binary bits. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to set a bit of the slave address as "1" or "0" to get this advantage.

35. **Referring to claims 9 and 10**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 5, teaches a display system with a memory however, does not teach wherein the byte for mode setting includes an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data wherein the EOFD bit is set as "1" when data of one frame is transmitted at one time.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and

Art Unit: 2182

well known in the computer art to get the advantage of differentiating various types of data using different binary bits. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data to get this advantage.

36. **Referring to claim 11**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 5, teaches wherein a display type bit and an OSD memory selection bit of the byte for mode setting in the burst data outputting step are set so as to be corresponded to an access method of main CPU (Central Processing Unit) [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 10 - lines 1-29.]

37. **Referring to claim 12**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 5, teaches wherein it is possible to update up to two image pixels by using a random byte in the pixel data outputting step [see *Singhal* column 5 - lines 62-67; column 6 - lines 1-5, 42-48; column 10 - lines 1-29.]

38. **Referring to claim 13**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to

Art Unit: 2182

claim 5, teaches setting the operation (active, standby, power down) mode by using a control register or selecting a position of OSD (on screen display) regions or determining on/off of the selected OSD regions [see *Kiwiet* column 2 - lines 46-67; see figure 1 - element 13.]

39. Referring to claims 16, 17, *Kiwiet* discloses an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47] however, does not disclose that the driver is a LCD (liquid crystal display) driver, wherein the operation mode of the system is an active mode and a standby mode of a LCD system. *Singhal* teaches a use of display system with LCD driver that significantly improves image quality [see *Singhal* column 2 - lines 31-43, lines 66-67; column 3 - lines 1-6..]

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the display system of *Kiwiet* to have improved display system, which provides user with desirable display system. It is for this reason that one of ordinary skill in the art would have been motivated to substitute *Kiwiet's* display system with a LCD display system.

Art Unit: 2182

40. **Referring to claim 25**, *Kiwiet* discloses an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47] however, does not disclose that the driver includes: a serial buffer temporarily storing data inputted from the main CPU; and two OSD (on screen display) memories being alternately inputted the data through the serial buffer, storing it and parallel-constructed so as to read pre-stored data from the other memory when the data is stored in the memory. *Singhal* teaches a use of display system with LCD driver that significantly improves image quality [see *Singhal* column 2 - lines 31-43, lines 66-67; column 3 - lines 1-6.]

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the display system of *Kiwiet* to have improved display system, which provides user with desirable display system. It is for this reason that one of ordinary skill in the art would have been motivated to substitute *Kiwiet's* display system with a LCD display system.

41. **Referring to claim 26**, *Kiwiet's* interface as modified by the teachings of *Singhal* as applied claim 25 above teaches wherein each OSD memory divides a region according to the data

Art Unit: 2182

transmission mode and operates part of regions as a power save region [see *Kiwiet* column 2 - lines 21-35.]

42. **Referring to claim 27**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 14, teaches a display system with a memory however, does not teach wherein 1 byte is allocated for a mode setting such as a display type, an image/text, a data type, and OSD memory selection and an EOFD (end of frame data) in the I2C interfacing between the main CPU and the driver.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of differentiating various types of data using different binary bits. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data to get this advantage.

43. **Referring to claim 28**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 14, teaches a display system with a memory however, does not teach wherein 3 bit image data describes 8 colors and 1 bit

Art Unit: 2182

text data describes background data and text data in the I2C interfacing between the main CPU and the driver.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of being able to display various colors and type of data by using various combination of binary bits to represent these various colors and type of data. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include different combination of bits to get this advantage.

44. **Referring to claim 29**, *Kiwiet* discloses an interface apparatus for a display system, comprising: a main CPU (Central Processing Unit) outputting data including an image and a text in accordance with an operation mode of a display system [see figure 1 - element 13]; a video codec being inputted the data and outputting the data by interfacing with the main CPU when the operation mode is an active mode [see figure 1 - elements 10, 13; column 2 - lines 45-67]; and a display driver being inputted the data through the video codec in the active mode, being directly inputted the data from the main CPU through the I2C interface without passing through the video codec in the standby mode and displaying the data on a screen of the display

Art Unit: 2182

system [see figure 1 - elements 10, 17, 13, 14; column 2 - lines 45-67], however does not teach that the display system includes a LCD system with a LCD driver. *Singhal* teaches a use of display system with LCD driver that significantly improves image quality [see *Singhal* column 2 - lines 31-43, lines 66-67; column 3 - lines 1-6.]

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the display system of *Kiwiet* to have improved display system, which provides user with desirable display system. It is for this reason that one of ordinary skill in the art would have been motivated to substitute *Kiwiet's* display system with a LCD display system.

45. **Referring to claim 30**, *Kiwiet's* interface as modified by the teachings of *Singhal* as applied to claim 29 above, discloses wherein the image is a still image, a moving picture and an animation [see column 2 - lines 45-67.]

Referring to claims 31 and 32, *Kiwiet's* interface as modified by the teachings of *Singhal* as applied to claim 29 above, teaches an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47] however, does not teach wherein the LCD driver is

Art Unit: 2182

inputted the data at 30 frames per second through the video codec in the active mode and displays the image and text of the data on the screen of the LCD at the same speed and wherein the LCD driver is inputted the data at 5 frames per second through the video codec in the standby mode and display the image and text of the data on the screen of the LCD at the same speed.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to operate a codec at a higher speed during an active mode and at a slower speed during standby mode to get the advantage of saving system resources. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to operate a codec at a higher speed during an active mode and at a slower speed during standby mode to get this advantage.

46.

47. **Referring to claim 33**, *Kiwiet's* interface as modified by the teachings of *Singhal* as applied to claim 29 above, discloses an interface method for a display system, comprising: outputting data including an image and a text according to an operation mode of a system [see column 1 - lines 31-47] however, does not disclose that the LCD driver includes: a serial buffer temporarily storing data inputted from the main CPU; and two OSD

Art Unit: 2182

(on screen display) memories being alternately inputted the data through the serial buffer, storing it and parallel-constructed so as to read per-stored data from the other memory when the data is stored in the memory. *Singhal* teaches a use of display system with LCD driver that significantly improves image quality [see *Singhal* column 2 - lines 31-43, lines 66-67; column 3 - lines 1-6.]

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the display system of *Kiwiet* to have improved display system, which provides user with desirable display system. It is for this reason that one of ordinary skill in the art would have been motivated to substitute *Kiwiet's* display system with a LCD display system.

48. **Referring to claim 34**, *Kiwiet's* interface as modified by the teachings of *Singhal* as applied to claim 29 above, teaches wherein each OSD memory divides a region according to the data transmission mode and operates part of regions as a power save region [see *Kiwiet* column 2 - lines 21-35.]

49. **Referring to claim 35**, *Kiwiet's* interface as modified by the teachings of *Singhal* as applied to claim 29 above, teaches a display system with a memory however, does not teach wherein 1 byte is allocated for a mode setting such as a display type, an

Art Unit: 2182

image/text, a data type, and OSD memory selection and an EOFD (end of frame data) in the I2C interfacing between the main CPU and the LCD driver.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of differentiating various types of data using different binary bits. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data to get this advantage.

50. **Referring to claim 36**, *Kiwiet's* method for the display system as modified by the teachings of *Singhal* as applied to claim 29, teaches a display system with a memory however, does not teach wherein 3 bit image data describes 8 colors and 1 bit text data describes background data and text data in the I2C interfacing between the main CPU and the LCD driver.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention that it was old and well known in the computer art to get the advantage of being able to display various colors and type of data by using various combination of binary bits to represent these various colors and

Art Unit: 2182

type of data. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include different combination of bits to get this advantage.

Conclusion

51. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents have been made record of to further show the state of the art as it pertains to operating display in different modes:

- a. Saunamaki et al. U.S. Patent Number: 6,597,351
- b. Li U.S. Patent Number: 6,356,538
- c. Chang et al. U.S. Patent Number: 6,618,773
- d. Atkinson U.S. Patent Number: 6,385,734
- e. Ho U.S. Patent Number: 5,757,365
- f. Wells et al. U.S. Patent Number: 5,870,683

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niketa I. Patel whose telephone number is (703) 305 4893. The examiner can normally be reached on M-F 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin can be reached on (703) 308 3301. The fax phone number for the

Art Unit: 2182

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AU 2182
03/16/2003



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